Claim

1. A DNA of either one of the following (a) and (b):
(a) a DNA represented by a nucleotide sequence of from the 94th to 2934th positions of the nucleotide sequence described in SEQ ID NO:1 of the SEQUENCE LISTING,
(b) a DNA represented by the nucleotide sequence described in SEQ ID NO:1 of the SEQUENCE LISTING.

2. A DNA which comprises the 94th to 2934th positions of the nucleotide sequence described in SEQ ID NO:1 of the SEQUENCE LISTING, and also encodes a protein having 3 activities of 10-formyl-tetrahydrofolate synthetase activity, 5,10-methenyl-tetrahydrofolate cyclohydrolase activity and 5,10-methylene-tetrahydrofolate dehydrogenase activity, and/or a cell growth accelerating activity.

3. The DNA described in claim 2, which is a DNA represented by the nucleotide sequence described in SEQ ID NO:1 of the SEQUENCE LISTING.

4. A DNA which comprises a nucleotide sequence wherein 1 or 2 or more of bases in the DNA sequence of the DNA described in any one of claims 1 to 3 are deleted,

substituted or added, and encodes a protein having a cell growth accelerating activity.

5. A DNA which hybridizes with at least either one of a DNA comprising the DNA described in any one of claim 1 to claim 4, a complementary chain of said DNA, a DNA represented by a partial nucleotide sequence of the DNA described in any one of claim 1 to claim 4 and a complementary chain of said DNA, under a stringent condition.

6. The DNA described in claim 5, which is a primer for amplifying at least one of a DNA comprising the DNA described in any one of claim 1 to claim 4, a complementary chain of said DNA, a DNA represented by a partial nucleotide sequence of the DNA described in any one of claim 1 to claim 4 and a complementary chain of said DNA, and/or a probe for detecting the same, and is a DNA selected from the following group;

(i) a DNA represented by the nucleotide sequence described in SEQ ID NO:3 of the SEQUENCE LISTING,

(ii) a DNA represented by the nucleotide sequence described in SEQ ID NO:4 of the SEQUENCE LISTING,

(iii) a DNA represented by the nucleotide sequence described in SEQ ID NO:5 of the SEQUENCE LISTING, and

(iv) a DNA represented by the nucleotide sequence described in SEQ ID NO:6 of the SEQUENCE LISTING.

7. A recombinant vector which comprises the DNA described in any one of claim 1 to claim 4.

8. A plasmid FERM BP-8419.

9. A transformant transformed with the recombinant vector described in claim 7 or the plasmid described in claim 8.

10. A protein of either one of the following (a) and (b);

(a) a protein represented by an amino acid sequence of from the 32nd to 978th positions of the amino acid sequence described in SEQ ID NO:2 of the SEQUENCE LISTING,

(b) a protein represented by the amino acid sequence described in SEQ ID NO:2 of the SEQUENCE LISTING.

11. A protein encoded by the DNA described in claim 4.

12. A method for producing the protein described in claim 10 or 11, which comprises a step of culturing a

transformant transformed with the recombinant vector described in claim 7 or the plasmid described in claim 8.

13. An antibody which uses the protein described in claim 10 or 11 or a fragment of said protein as the antigen.

14. A method for identifying a compound that inhibits the cell growth accelerating activity possessed by the protein described in claim 10 or 11, characterized in that whether or not a certain compound inhibits the cell growth accelerating activity of the protein described in claim 10 or 11 is judged by detecting the presence, absence or change of the cell growth accelerating activity under such a condition that interaction between said compound and the protein described in claim 10 or 11 is enabled.

15. A method for identifying a compound that inhibits the cell growth accelerating activity possessed by the protein described in claim 10 or 11, characterized in that it uses at least one of the protein described in claim 10 or 11, the DNA described in any one of claim 1 to claim 4, the DNA described in claim 5 or 6, the recombinant vector described in claim 7 or the plasmid described in claim 8, the transformant described in claim 9 and the antibody described in claim 13.

16. A method for judging whether or not a certain tissue is a colon cancer derived tissue, characterized in that expressed amount of the DNA described in any one of claim 1 to claim 4 in the certain tissue is measured.

17. The judging method described in claim 16, wherein it is judged that a certain tissue is a colon cancer derived tissue when expressed amount of the DNA described in any one of claim 1 to claim 4 in the certain tissue is 3 times or more of the expressed amount of the DNA described in any one of claim 1 to claim 4 in a normal colon derived tissue as the control.

18. The judging method described in claim 17, wherein expressed amount of the DNA described in any one of claim 1 to claim 4 in a certain tissue is measured by the following steps;

(i) a step for carrying out reverse transcription reaction using RNA contained in the certain tissue as the template,

(ii) a step for carrying out polymerase chain reaction using the cDNA synthesized by the reverse transcription reaction as the template, and DNA fragments represented by the nucleotide sequences described in SEQ ID NOs:5 and 6 of the SEQUENCE LISTING as the primers, and

(iii) a step for measuring amount of DNA amplified by the polymerase chain reaction.

19. A colon cancer judging kit which is used in the judging method described in any one of claim 16 to claim 18, characterized in that it contains at least either one of the DNA described in claim 5 or 6 and the antibody described in claim 13.

20. A preventive agent and/or therapeutic agent for colon cancer, which comprises an inhibitor of the protein described in claim 10 or 11.